

Output Test Procedures

Output Test for the Atlas Controller

The Atlas System is designed to provide consistent output levels. The System is calibrated by clock crystals, voltage references and fixed resistors. There are NO internal adjustments in the instrument. Due to the integrated calibration methods utilized by the Atlas System, no annual maintenance check is required. If necessary, an output test can be performed on the Atlas System to verify that the output voltage levels are within the instrument's specifications.

WARNING: This output test procedure must be followed as stated using only the electronic equipment listed in this procedure. Extreme caution should be taken, as lethal high voltage is present during this test. Only qualified service engineers/technicians should perform this test. Any deviation from this procedure or failure to comply with the contents may result in complications with the equipment, and/or safety hazards to the user or patient, as well as, the warranty on the instrument to be voided.

The following equipment is required to perform the Output Test on the Atlas System:

- Tektronix Digital scope Model TDS420 or equivalent
- Tektronix Differential probe Model P5200
- 250 Ω 250 W precision non-inductive load
- UltraVac™ ICW (ArthroCare P/N ASC5000-01) or equivalent (black receptacle)
- TurboVac™ ICW (ArthroCare P/N ASC1335-01) or equivalent (tan receptacle)

Step 1 – Setup the Tektronix Digital scope to the following settings

1. Sweep speed - 5 μ sec per division
2. Voltage - 500 mV per division
3. Trigger - Normal Mode
4. Measure Mode - RMS and sample mode

Step 2 – Setup the Atlas System as stated in the User's Manual. If using an ICW with black mating end, slide the sliding door to the left and connect the ICW to the back Cable Receptacle on the front of the Controller. If using an ICW with gray mating end, slide the sliding door to the right and connect the ICW to the tan Receptacle.

Step 3 – Clip the scope return to the neck of the Wand (unshielded outer metal part) and place in series the 250 Ω 250 W precision non-inductive load. Touch one end of the load to the Wand and attach the other end to the scope Wand tip.

Step 4 – Choose the set point level (1-9) and press the ablation activation pedal of the Foot Control. Multiply scope reading by a factor of 2 and verify the reading with the table below. Verify the coagulation output by pressing the coagulation pedal of the Foot Control.

Output voltage for Atlas Controller in Ablation and Coagulation modes

Display	Output Range @ 100 kHz in Vrms	Typical voltage @ 100 kHz in Vrms
1	81-97	89
2	97-120	110
3	122-150	137
4	145-177	162
5	167-205	187
6	188-231	211
7	211-259	236
8	238-292	266
9	255-316	285
C	59-71	65

NOTE: If any of the voltage level readings are not within the above specifications, please contact the ArthroCare Corporation Customer Service Department immediately.

Output Test Using an Electrosurgical Analyzer

The Atlas Controller power output (Wrms) can also be verified by using an Electrosurgical Analyzer (i.e. Dynatech 454).

WARNING: This output test procedure must be followed as stated using only the electronic equipment listed in this procedure. Extreme caution should be taken, as lethal high voltage is present during this test. Only qualified service engineers/technicians should perform this test. Any deviation from this procedure or failure to comply with the contents may result in complications with the equipment, and/or safety hazards to the user or patient, as well as, the warranty on the instrument to be voided.

The following equipment is required to perform the power output test on the Atlas System:

- Electrosurgical Analyzer (Dynatech 454 or equivalent)
- Wand with Patient Cable, ICW or Adapter Cable (ArthroCare P/N 11617)

Step 1 – Set the Electrosurgical Analyzer to the following parameters:

1. Select Manual mode
2. Select Output Controller test
3. Set internal load to 250 Ω .

Step 2 – Set up the Atlas System as stated in the User's Manual. Attach the Wand with Patient Cable to the Controller. When using the Adapter Cable, connect the Yellow lead to the "Active" input on the ESU and the Blue lead to the "Dispersive" or "Return" input on the ESU (see Figure 1). When using the Wand and Patient Cable, connect the "Active" input from the ESU to the tip of the Wand and the "Dispersive" or "Return" to the shield of the Wand.

Step 3 – Choose the Setpoint (1-9) and press the Ablation pedal of the Foot Control. Verify the readings with the table on the following page. Verify the coagulation output by pressing coagulation foot pedal.

NOTE: If any of the power level readings are not within the listed specifications, please contact ArthroCare Corporation Customer Service Department immediately.

Power Output for Atlas Controller in Ablation and Coagulation modes

Display	Power Range @ 100 kHz in Wrms	Typical Power @ 100 kHz in Wrms
1	26-38	32
2	38-58	48
3	60-90	75
4	84-126	105
5	112-168	140
6	142-214	178
7	178-268	223
8	227-341	284
9	261-400 Max.	326
C	14-20	17